Improving of Drug Seniors Living in of

There is room to improve drug management of Saskatchewan community-dwelling seniors. In particular:

- Many patients are taking drugs on the "Beers" list of medications. These drugs increase seniors' risk of falls, confusion, and other side effects, and their use could be avoided with safer alternatives. Among Saskatchewan's community-dwelling seniors, 15% (18,458) were *chronically* dispensed at least one such drug in fiscal year 2003-04, and nearly one in four *sporadically* received at least one of these drugs.
- Benzodiazepine use in seniors increases the risk of falls and confusion. Over 11,000 seniors were chronically dispensed benzodiazepines and one in five of them (2,241) received a dosage above the recommended maximum.
- The Health Quality Council is working with community groups and health care professionals to encourage adoption of practices to reduce the use of these medications among Saskatchewan seniors.

Why look at the quality of drug management in Saskatchewan community-dwelling seniors?

Drug management is an integral and challenging part of providing quality care to the elderly. Seniors are at particular risk for problems because they are often on several medications at once, and because their bodies are more sensitive to medications.

In December 2004 the Health Quality Council released a report showing that 28% of seniors living in Saskatchewan long-term care facilities were chronically dispensed at least one drug on the internationally recognized "Beers" list. Such drugs have a high risk of adverse side effects and could potentially be avoided by using safer substitutes.[1] Our health system partners told us that drug management of seniors living in the community was an equally important issue that warranted attention. We conducted this project in response to their feedback.

Research done elsewhere reports that 6% to 27% of community-dwelling seniors receive medications that should generally be avoided in the elderly.[2-7] Two recent Ontario studies found that the community-dwelling elderly are significantly more likely than residents of long-term care facilities to be dispensed potentially inappropriate medications.[4,8]

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For more detailed information on results, please visit the Health Quality Council web site: www.hqc.sk.ca.

How did we assess quality?

We measured quality of care using the same indicators developed for our review of drug management in long-term care. These indicators are based on a synthesis of the literature and the recommendations of an expert panel. In this project, we focused on two key indicators of the extent to which seniors were dispensed drugs that could put them at greater risk for adverse side effects:

- The number of community-dwelling seniors who were chronically dispensed drugs from the Beers list of potentially avoidable high-risk medications;
- The number of community-dwelling seniors who were chronically dispensed benzodiazepines.

We did not look specifically at patient outcomes (e.g., accidental falls, hospitalizations, or death). However, the medical literature shows that each of these drug prescribing indicators are linked to these types of adverse side effects.[1,2]

Using de-identified administrative data from Saskatchewan Health, we studied dispensing patterns for all individuals who:

- Were 65 years of age and older;
- Were residents of Saskatchewan; and,
- Received at least one prescription drug through the provincial drug plan during that time frame.

A total of 121,426 seniors met our study criteria. Of these, 58% were female. The average age was 76 years; 48% were between 65 and 74.

Seniors were excluded from the study if they:

- Did not have valid Saskatchewan health insurance coverage for the entire study period;
- Had Registered Indian status. Drug use for Registered Indians is not captured in Saskatchewan's prescription drug database because the federal government covers their prescription costs; or,
- Were temporary or permanent residents of long-term care for 35 or more consecutive days during the study period.

Study limitations

This study was based on drug insurance claims made to Saskatchewan's public drug coverage program. Thus, it has the following limitations:

- Because diagnostic information was unavailable, we do not know the medical conditions for which drugs were dispensed;
- Pharmacy claims do not capture prescriptions written but not dispensed or promotional samples given to a patient by a physician;
- We have no way of knowing if patients took drugs as prescribed; and,
- This study examined only two main issues regarding drug management: Dispensing of benzodiazepines and Beers drugs. We did not examine many other potential concerns about drug management, such as over or underuse of other drugs or errors in drug administration.

How are we doing in Saskatchewan?

In 2003-04, 15% of Saskatchewan community-dwelling seniors (18,458) chronically received one or more Beers drugs. There were no striking differences in dispensing rates among the various health regions; rates varied from 13% to 17%. Three drugs–estrogens (27%), digoxin above the recommended maximum dose of 125 mg/day (20%), and amitriptyline (20%)–accounted for approximately 67% of the overall chronic dispensing of Beers drugs in the province.

Nine per cent of the province's community-dwelling seniors were chronically dispensed benzodiazepines. Of these seniors, one in five (2,241) were chronically dispensed a dosage above the recommended maximum.

Twenty-three per cent of seniors (1,675) were dispensed at least one prescription (i.e., sporadic use) for a high-risk, potentially avoidable drug, as defined by the Beers list.

What do our findings mean?

A recent study comparing Beers prescribing among home care clients in eight European countries found rates ranged from a low of 6% (receiving at least one potentially inappropriate drug) in Denmark, to a high of 26% in Italy. Saskatchewan's provincial average (23%) is close to the highest rates reported in this study. While there are no benchmarks for Beers drug use among community seniors, and there may be specific instances where these drugs are appropriate, clearly there is room to improve prescribing in Saskatchewan.

Room for Improvement

We can improve quality of care for Saskatchewan community-dwelling seniors by ensuring that drugs on the Beers list and benzodiazepines are being prescribed appropriately and their effects monitored continually. Prescribing alternatives wherever possible will reduce seniors' risk of adverse side effects. Saskatchewan health care providers should consider focusing on decreasing dispensing rates for three medications that account for two-thirds of chronic Beers drug use in Saskatchewan seniors: estrogens, digoxin (above recommended maximum daily dose), and amitriptyline.

Although benzodiazepine dispensing rates in Saskatchewan are similar to those in other jurisdictions, there is still potential for improvement.[18,19] Evidence from the literature suggests that most seniors can be gradually weaned off benzodiazepines without experiencing any ill effects.[20,21] Withdrawal may be most difficult for those who have been taking high doses for a long time, but it is achievable.

Next steps

The Health Quality Council is committed to supporting initiatives that target areas for improvement highlighted in this report. We have outlined below how we are currently supporting quality improvement initiatives that are based on approaches shown in the literature to be effective in enhancing drug management in seniors:

- Patient Education: There are many patient education approaches that are effective in improving drug management in seniors. The Health Quality Council is working with the regulatory bodies in medicine, pharmacy, and nursing, and a provincial seniors' organization to identify ways to increase seniors' knowledge of benzodiazepines and Beers medications.
- Interdisciplinary care: A growing body of evidence suggests that physicians, pharmacists, nurses, and other providers working in an integrated team can significantly improve health outcomes and system efficiency. Home care managers from several health regions have expressed interest in finding ways for home care workers to work more closely with pharmacists and physicians to improve their clients' medication management. In addition, a primary health centre in Saskatoon is interested in developing a team-based approach to reviewing their seniors' medications. HQC is supporting these teams to achieve their quality improvement goals.
- Decision support tools: These are tools designed to help providers, and ideally patients, make evidence-based choices about care. They can include a wide range of tools, from the highly complex (clinical practice guidelines or computerized reminder systems) to the very simple (posters in nursing stations or pocket cards). These decision supports are often an integral component of any quality improvement strategy. For example, a very useful guide, "Benzodiazepines: How They Work and How to Withdraw" by Professor H. Ashton, contains benzodiazepine withdrawal schedules. It is available online at: http://www.benzo.org.uk/manual/index.htm. HQC will make these kinds of tools readily available to health professionals on our web site in the near future.

We are identifying other community groups and health care professionals interested in addressing issues identified in our analysis. By working together, we can improve the medication management of Saskatchewan seniors.

TABLE 2: INDICATORS AT A GLANCE, IN SASKATCHEWAN, FISCAL YEAR 2003-04*

	Chronic Beers Use*	Chronic Beers Use, >=2 Concurrent Prescriptions* (%)	Any Beers Use*	Chronic Benzodiazepine Use*	Chronic Benzodiazepine Use, >=2 Concurrent Prescriptions*	Chronic Benzodiazepine Use, Above Maximum Dose*
	(%)	(%)	(%)	(%)	(%)	(%)
All Saskatchewan	15	9	23	9	6	20
Most Favourable Regional Score in Saskatchewan* **	13	8	21	5	—	17
Age (years)**						
65 - 74	15	***10***	***24***	**8**	6	19
75 - 84	15	9	23	***10***	6	20
> = 85	***16***	**8**	23	***12***	5	22
Sex						
Male	**10**	**6**	**17**	**7**	**5**	23
Female	***19***	***10***	***28***	***11***	***6***	**19**
Health Regions (RHA)						
Sun Country	***16***	10	***25***	***11***	6	18
Five Hills	15	10	23	***12***	***8***	***24***
Cypress	***17***	***11***	***26***	***12***	7	20
Regina Qu'Appelle	***16***	**8**	***24***	**8**	6	20
Sunrise	15	9	24	***11***	6	20
Saskatoon	15	9	**23**	**9**	5	**17**
Heartland	16	9	25	9	5	18
Kelsey Trail	15	9	23	**8**	5	20
Prince Albert Parkland	**14**	9	23	**8**	6	24
Prairie North	**13**	9	**21**	**8**	6	26
Northern Sask**	15	***16***	26	**5**	NA	NA

* Age-specific rates adjusted for sex, sex-specific rates adjusted for age, and RHA rates adjusted for both age & sex, using the indicator denominator population. Provincial rates (All Saskatchewan) are presented as crude rates.

** Includes Keewatin Yatthé, Mamawetan Churchill River and Athabasca Health Authorities

BOLD indicates rates that are statistically significantly better than the rate across all other groups within the category combined.

ITALICS indicates rates that are statistically significantly poorer than the rate across all other groups within the category combined.

NA Removed from analysis due to small numbers.

NOTE: Registered Indians were excluded from the analysis because their drug prescribing patterns are not captured in Saskatchewan's prescription database. Results for Northern Saskatchewan, in particular, should be interpreted with caution given this data limitation.

In 1991, gerontologist Dr. Mark H. Beers developed a list of potentially avoidable, high-risk medications to be avoided in the elderly.

To see the updated list, visit the Health Quality Council web site: www.hqc.sk.ca.

TABLE 1: QUALITY OF CARE INDICATORS

Indicator	Why is it important?	Provincial Average (crude rate)	RHA Range (adjusted rates)	Health region with best quality score (lowest prescribing rate)
Chronic Beers use	Drugs on the internationally recognized Beers list carry a high risk of falls, dizziness, confusion and other side effects and can often be substituted with safer alternatives. Chronic use of Beers drugs increases seniors' risk of adverse side effects.	15%	13% - 17%	Prairie North
Chronic Beers use >=2 concurrent prescriptions	Chronic use of two or more Beers drugs at the same time increases the risk of adverse side effects.	9%*	8% - 16%	Regina Qu'Appelle
Any Beers use	Patients who use a Beers drug on a sporadic basis (i.e., at least once per year) are still at risk of adverse events (although not as high as chronic users). This measure is often cited in the medical literature and can be used to compare our result to other jurisdictions.	23%	21% - 26%	Prairie North
Chronic benzodiazepine use	Benzodiazepines increase seniors' risk of adverse side effects.	9%	5% - 12%	Northern Saskatchewan
Chronic benzodiazepine use >=2 concurrent prescriptions	Use of two or more benzodiazepines at the same time puts the eldery at even greater risk of adverse effects.	6%**	5% - 8%	No region had a significantly better rate than others
Chronic benzodiazepine use above maximum dose	The risk of adverse events increases with higher doses of benzodiazepines, even among long-term users.	20%	17% - 24%	Saskatoon

* Of the 15% of Saskatchewan seniors chronically dispensed Beers drugs, 9% received two or more at the same time.

** Of the 9% of Saskatchewan seniors chronically dispensed benzodiazepines, 6% received two or more of these sedatives at the same time.

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